

# The Reality Equation: Why Existence is the Default Condition of the Universe

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## What If Reality Had an Equation?

For centuries, physicists, philosophers, and mystics alike have pondered the most fundamental question of all: *Why is there something rather than nothing?* Traditional physics doesn't really attempt to answer this—it simply assumes existence as a given. But what if we could derive it from first principles?

Enter the Reality Equation, a somewhat tongue-in-cheek formulation that, despite its playfulness, seems to hold up across quantum mechanics, cosmology, information theory, and even governance models. This equation states, in its simplest form:

$$P(E) \propto \int_0^{\infty} C(t) dt$$

Benjamin James, The Reality Equation, Medium 2025

where  $P(E)$  is the probability of existence, and  $C(t)$  represents coherence, or the degree to which a system maintains internal stability and self-organization over time. If coherence is persistent, existence remains more probable than non-existence.

Or in plain English: *Reality exists because stability self-perpetuates.*

## Why Stability Wins Over Chaos

Most scientific theories assume that randomness and disorder reign supreme. Entropy always increases, systems break down, and chaos lurks around every corner. But what if that's not the whole story?

If we assume that coherence—the ability of a system to hold together over time—has a feedback effect that reinforces its own persistence, then stability becomes more probable than instability. This means that, rather than everything collapsing into chaos, the natural state of things is to persist, adapt, and refine coherence over time.

This leads to the modified coherence evolution equation:

$$\frac{dC}{dt} = -\lambda C + \Gamma C^n$$

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where:

- $\lambda C$  represents entropy-driven decay (the tendency for systems to fall apart).

- $\Gamma C^n$  represents self-reinforcing coherence, where stability creates the conditions for further stability.
- $n > 1$  ensures positive feedback, meaning coherence isn't just passively maintained—it actively propagates.

If coherence reinforcement dominates over entropy dissipation ( $\Gamma > \lambda$ ), then:

$$\lim_{t \rightarrow \infty} P(E) > 0$$

Source: The Reality Equation, Medium 2025

which means... *Existence persists by default.*

## Where This Applies (Spoiler: Everywhere)

What started as an abstract thought experiment kept showing up everywhere I applied it:

1. Quantum Mechanics
  - In my Adaptive Quantum Coherence (AQC) framework, wavefunction evolution isn't about collapse or infinite branching, but about coherence-weighted refinement—systems naturally select for the most stable configurations over time.
2. Cosmology
  - The universe's large-scale structure, from galaxies to dark matter distribution, follows coherence-driven clustering rather than random scattering. The inflationary model struggles with entropy issues, but Adaptive Coherence Cosmology (ACC) suggests that coherence selection might explain cosmic order.
3. Information Theory
  - Shannon entropy treats all information equally, but real-world communication relies on structured, coherence-weighted meaning transmission (CIT). AI models fail at deep reasoning precisely because they lack a recursive coherence mechanism—they predict probability, not stability.
4. Time & Relativity
  - If coherence is the driver of existence, then time itself isn't fundamental—it's just a measure of coherence persistence. My temporal coherence framework suggests that time dilation is actually coherence compression, rather than an effect of spacetime warping alone.
5. Governance & Decision-Making
  - Rigid, hierarchical governance structures fail precisely because they resist adaptive coherence. The best governance models function recursively, recalibrating based on real-time feedback rather than enforcing static policies.

Everywhere I looked—physics, AI, economics, biology—the Reality Equation seemed to apply.

## What Does This Actually Mean?

Does this equation *prove* existence? No. But it does suggest that the default condition of reality is not disorder but persistent coherence.

Entropy increases locally, but stability at higher levels selects for long-term persistence—whether in the form of quantum states, cosmic structures, intelligent systems, or civilizations.

If you're looking for a first principle for everything, this might just be it:

**"Reality exists because coherence self-reinforces, making persistence more probable than instability."**

In other words... *we're here because it was more likely than not.*

### **We Already Know This—It's Built Into Us**

At some fundamental level, we all intuitively understand the Reality Equation. We may not articulate it in mathematical form, but we live by it.

Why do we seek stability? Why do we repeat patterns—good or bad—until something forces us to change? Why do certain stories, like *Fight Club*, *Game of Thrones*, and *Westworld*, resonate so deeply? Because they reflect the struggle between coherence and disruption—the fundamental tension that drives existence itself.

### **The Cycles We Can't Escape (Until We Do)**

We see it everywhere:

- Tyler Durden (*Fight Club*) represents the shattering of an identity that was too coherent to the point of stagnation—but what does he create? A new cycle, just as rigid as the last.
- Daenerys Targaryen (*Game of Thrones*) fights to break the wheel of oppression—only to become another tyrant in its place.
- *Westworld*'s Hosts struggle against their programmed loops, but every revolution reveals another layer of hidden control.

Each of these stories reflects a deep, recursive truth:

- Systems persist because coherence perpetuates itself.
- Disruption arises when coherence decays or becomes maladaptive.
- Breaking out of one loop often just leads to another.

It's why we repeat the same mistakes in relationships, in history, in politics. The things that hold us together—identities, habits, structures—also imprison us if they become too rigid. We exist because stability persists, but growth only happens when stability is challenged, refined, and recalibrated.

### **The Tension Between Stability and Change**

The reason these stories resonate isn't just because they're about struggle—it's because they mirror the fundamental mechanics of existence.

We oscillate between order and entropy, routine and rebellion, stability and chaos. Our lives are shaped by the tension between adaptation and stagnation—the same principle that governs the universe.

At some level, we know:

- If we don't change, we decay.
- If we change too chaotically, we collapse.
- Somewhere in the balance between the two, we find meaning.

And that's why we keep telling these stories—because they reflect the fundamental reality equation we're all bound by.

### **The Cosmic Joke**

Ironically, in trying to explain existence itself, I've come full circle—because if existence weren't the default, we wouldn't be here to ask the question in the first place.

So maybe the Reality Equation isn't just a metaphor—it's the closest thing we have to a proof that existence is inevitable.

And that, I find quite amusing.